Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The star UZ *Cygni* is out of the ordinary in the length of its period, its rather low density for an A-type star (0.01 in terms of the Sun), and in its probably very great distance from the solar system (hypothetical $\pi = 0''.0004$). Each eclipse lasts 2.5 days and the small bright star is totally obscured for 24 hours.

The new series of observations can not be satisfied by the light elements due to PICKERING, nor by the closely similar formula derived by HARTWIG. The following revised elements represent them satisfactorily, and also the earlier Harvard series (Vol. **69**, part I):

$$\text{Min.} = \text{J. D. } 2415868.930 + 31^{d}.308 \cdot E.$$

HARTWIG announced in 1904 a secondary minimum of four-tenths of a magnitude[2] and gives annually an ephemeris for it in the *Katalog*. As the range of variation at primary is 1.86 mag. (revised value), such a secondary is impossible on the eclipse hypothesis, which permits one of at most but a few hundredths of a magnitude. WENDELL'S observations, which are nearly contemporary with HARTWIG'S announcement, confirm the absence of an appreciable secondary, which, for a circular orbit, should come at phase 15.7 days. The normal magnitudes at phases 13.2, 14.7, 15.4, and 16.7 days are 10.24, 10.33, 10.29, and 10.28, respectively, while 15 other observations give for the mean maximum magnitude 10.29 ± 0.02.

The revised photometric orbit differs very little from that originally computed, except that the inclination is 90° for both "uniform" and "darkened" solutions, and the "uniform" densities are slightly increased. The density of the fainter component is less than one-thousandth that of the Sun. Its spectrum is unknown, but an attempt will be made at Mount Wilson to determine its color index.

HARLOW SHAPLEY.

ABSOLUTE MAGNITUDE AND COLOR OF A VERY FAINT STAR.

In the preceding number of these *Publications* (December, 1915), Dr. VAN MAANEN announces the discovery of a faint, distant companion to the large proper motion star Pi. $2^{h}123$. The coincidence of the direction and amount of the proper motions makes it practically certain that the two form a physical pair, and we may use the known parallax of the brighter star to determine the absolute magnitude of the fainter as soon as the apparent magnitude of the latter is measured. Because of the importance of knowing the intrinsic luminosity and spectral type of such stars, a series of observations has been made with the 60-inch reflector for the purpose of determining the magnitude and color of the faint companion.

---

[2] *Astronomische Nachrichten*, **165**, 121, 1904.

The plates, each involving a polar comparison, are as follows:—

			No. Exposures		
No.	Kind	Aperture	Pole	Star	Magnitude
2830	Seed "27"	60 in.	2	2	13.13
2831	"Iso"	60	3	2	11.59
2832	"Iso"	60	1	2	11.36
2833	Seed "27"	60, 32	2	2	13.19
2848	Seed "27"	32	2	2	13.38
2849	"Iso"	32	1	2	11.56

The magnitudes have been corrected for atmospheric extinction.

The adopted photographic magnitude is 13.24, the photovisual 11.50, and the resulting color index, + 1.74, corresponds to color class *m*4. The relation between color and spectrum for stars as red as this is not definitely determined for the Mount Wilson photometric system. Provisionally, at least, we are justified in assuming that the spectrum of the star is not bluer than type M.

Assuming as the parallax of this star the weighted mean of the values derived by Flint, and Smith and Elkin for Pi. 2^h123, the absolute photovisual magnitude is 12.3 ± 0.7, the probable error including the large uncertanties in the parallax and the errors in the magnitudes. The luminosity of the star is only one-thousandth that of the Sun. It is, therefore, one of the faintest stellar objects on record.

Harlow Shapley.

The Spiral Nebula Messier 33.

A 34½-hour spectrum of the bright knot 10 minutes of arc *nf* the nucleus of *Messier* 33 was obtained with the 60-inch Cassegrain spectrograph,[1] using a short focus camera of which

---

[1] "Radial Velocities of 6 Nebulæ," *Publications of the Astronomical Society of the Pacific,* December 1915.